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Abstract: A package of B-spline finite strip models is developed for the linear analysis of piezolaminated plates and shells. This package is associated to a global optimization technique in order to enhance the performance of these types of structures, subjected to various types of objective functions and/or constraints, with discrete and continuous design variables. The models considered are based on a higher-order displacement field and one can apply them to the static, free vibration and buckling analyses of laminated adaptive structures with arbitrary lay-ups, loading and boundary conditions. Genetic algorithms, with either binary or floating point encoding of design variables, were considered to find optimal locations of piezoelectric actuators as well as to determine the best voltages applied to them in order to obtain a desired structure shape. These models provide an overall economy of computing effort for static and vibration problems.

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